

APPENDIX B

Claims as Pending After Entry of the Instant Amendment

1. A polymerase chimera comprising functional amino acid fragments of at least two different polymerases, wherein the functional amino acid fragments are active in the polymerase chimera, a domain having polymerase activity is derived from the first polymerase and a domain having 3'-5' exonuclease activity is derived from the second polymerase, and wherein the amino acid sequence of the polymerase chimera essentially corresponds to SEQ ID NO: 8.
4. (Twice amended) The polymerase chimera of claim 1, wherein the chimera additionally has reverse transcriptase activity.
5. (Twice amended) The polymerase chimera of claim 4, wherein histidine tags have been incorporated into the amino acid sequence of the chimera.
6. (Twice amended) A nucleic acid that encodes the polymerase chimera as claimed in claim 1.
7. A nucleic acid that encodes a polymerase chimera comprising the sequence of SEQ ID NO. 2.
10. A vector comprising the nucleic acid as claimed in claim 6.
11. A host cell which has been transformed with the vector as claimed in claim 10.

12. (Twice amended) A process for the production of the polymerase chimera of claim 1, wherein the process comprises the following steps:
- (a) designing variants with the aid of amino acid sequence alignments, of three dimensional models or with the aid of experimentally determined three dimensional structures;
 - (b) production of domain exchange variants by genetic engineering;
 - (c) ligating DNA fragments that encode the variants into starting vectors;
 - (d) expression of the chimeras in a host which has been transformed by vectors carrying the DNA fragments; and
 - (e) purifying the expressed polymerase chimeras.
13. (Twice amended) A method for using the polymerase chimera of claim 1 comprising amplifying a nucleic acid by PCR with the polymerase chimera.
14. (Twice amended) A method for using the polymerase chimera of claim 1 comprising sequencing a DNA fragment wherein the polymerase chimera polymerizes a population of DNA molecules complementary to the DNA fragment, and wherein the polymerized DNA molecules comprise a dideoxynucleotide at their 3' termini.
15. (Twice amended) A method as in claim 13, wherein the nucleic acid is RNA.
16. (Twice amended) A kit comprising a polymerase chimera of claim 1.